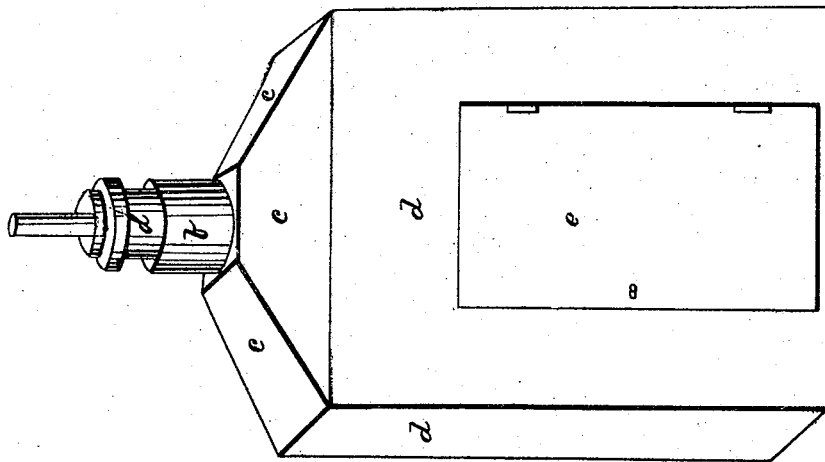
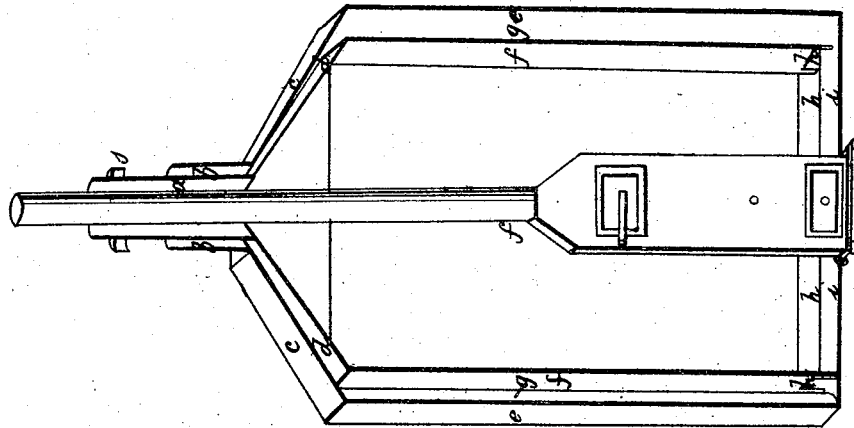


*F. A. Fickardt.*  
*Hot-Air Furnace.*  
*Patented Sept. 8, 1836.*



# UNITED STATES PATENT OFFICE.

FREDERICK A. FICKARDT, OF EASTON, PENNSYLVANIA.

## FURNACE FOR WARMING BUILDINGS.

Specification of Letters Patent No. 23, dated September 8, 1836.

*To all whom it may concern:*

Be it known that I, FREDERICK A. FICKARDT, of the borough of Easton, in the county of Northampton, and State of Pennsylvania, have invented a new and useful Improvement in Furnaces for Supplying Upper Rooms with Heated Air, and that the following is a full and exact description thereof, to-wit:

10 A, first chamber of such size, shape and proportions as may at any time be deemed most eligible for the purposes intended to-wit: containing the stove, and body of air sufficient in its passage for conveying heat  
15 enough to the rooms, the chamber to be made of tin, or other reflecting material, and having a sloping top, terminating in a central tube, or flue, but to have no bottom, the whole resting on a sufficient number of feet,  
20 said feet to be three, or four inches high, thus leaving a void beneath its edge for the entrance of air in a manner hereafter to be described, secondly, a second, or outer chamber made of similar, or other reflecting material large enough to surround the first  
25 chamber so as to leave a void between their respective opposing surfaces say of one, two, or three inches for the travel of the air to be heated, &c. This second chamber to have  
30 a sloping top, and a tube, the tube to be short say three, or four inches, but both so to correspond with those of the first, or inner chamber, as to leave a void between for the admission of the air equal, and continuous  
35 with the void just described, the whole void together forming a passage for the external air between the bodies of the inner, and outer chambers, and underneath the edge of the inner one, where of course after having  
40 intercepted the heat escaped through the first reflector it comes in contact with the stove, or other apparatus used for generating heat, and passes up through the tube of the inner chamber, and from thence it is conducted to the rooms. This second chamber,  
45 will stand on a level with the bottom of the feet of the first chamber, and should have an air tight, or nearly air tight bottom, or be otherwise suitably arranged, or the plan for the current of air may be altered so as to  
50 leave the opening for the entrance of external air at the bottom of the void above described, and (closing that above of course) to have also by means of an aperture in the

top, or tube of the inner chamber the communication for the outer, and inner drafts  
55 above; both the first and second chambers may have doors situated so as to correspond for the purpose of feeding the stove, &c. The tube of the inner, or first chamber will  
60 move over in the case of the first plan which is set forth in the drawings, and model be furnished with a sliding lid, or cover to fit closely over the mouth of the tube of the  
65 outer chamber, and thereby when occasion requires to close that aperture against the entrance of external air from the cellar, &c. Lastly the whole outer surface, of the  
70 outer chamber as well as when convenient of the outer surface of the tubes may be covered with a coating of coarse woollen, or other fabric of like pliable, and as it regards heat, non-conducting nature such  
75 coating if thought desirable to be previously prepared, by solutions, or mixtures of soap, and alum, &c., to a higher degree of non-conducting power as aforesaid, the preparation of such coating as aforesaid, to consist in one, or more immersions in a strong  
80 solution of alum, &c. immersions, and subsequent dryings following alternately, or in the use of soap alone, or of a mixture of soap, and alum, or alum water, the mixture to be of same consistency in either case, the ingredients to be well incorporated with  
85 the body of the coating aforesaid.

What I claim as my own invention, and not previously known in the above described furnace is—

1. The employment of two successive reflecting chambers as above described for the purpose of throwing back, and retaining the radiated, and other heat coming in contact with them.

2. The employment of an outer reflecting chamber, when in combination with an inner chamber reflecting, or otherwise, by the term outer, I mean outer with regard to the interior one.

3. The use of the void between the two chambers when in combination with an outer reflecting chamber.

4. The sliding lid above described as on the inner tube for the purpose of closing the draft, and preventing the passage of foul, or damp air from the cellar, when the furnace is out of use.

5. The application of such coating of

woolen, or other like material as above described to the exterior chamber to serve as a non-conducting medium, and preservation of heat.

- 5 Immediate heat, great heat, and economy of heat, and consequently economy of fuel, money, time, patience, and domestic comfort

are the advantages which the subscriber hopes he is but reasonably led to anticipate by these improvements.

FREDERICK A. FICKARDT.

Witnesses:

JOHN DRINKHAUSE,  
H. S. CAREY.